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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/928,360	08/14/2001	Ichiro Nakajima	837.1970	6429

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EXAMINER	
SINGH, DALZID E	
ART UNIT	**PAPER NUMBER**
2633	

DATE MAILED: 09/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/928,360	NAKAJIMA ET AL.	
	Examiner	Art Unit	
	Dalzid Singh	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 August 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) *3-8* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 2* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 August 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of the species requirement in the reply filed on 06 August 2004 is acknowledged.

In the response to the election of species and in accordance to the telephone interview on August 03, 2004, applicant indicates the election of Fig. 4, which corresponds to claims 1 and 2. Therefore, claims 1 and 2 will be considered for examination. Since claims 3-8 does not correspond to the elected figure, these claims are not considered for examination.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over the prior art submitted by applicant in Fig. 2 (hereinafter "reference A") in view of Karasan et al (US Patent No. 5,878,177).

Regarding claim 1, reference A shows an optical add/drop device (as shown in Fig. 2, optical signal from device (12) is added to switch (24) and optical signal from switch (26) is dropped to device (16); therefore the system shown in Fig. 2 is an add/drop device) comprising:

an optical demultiplexer (6) for separating WDM signal light (λ1-λn) into n (n is an integer satisfying 1 < n) optical signals having different wavelengths (the WDM signal is divided into n different wavelengths, each wavelength is transmitted on single transmission path; for example, λ1 is transmitted on first path and λn is transmitted on the last path), said WDM signal light being obtained by wavelength division multiplexing said n optical signals (as shown in Fig. 2, a single optical fiber (4) carries plurality of optical signals of different wavelengths (λ1-λn) forming a WDM signal light, therefore it would have been obvious that the WDM signal is obtained by wavelength division multiplexing);

n first optical switches (Fig. 2 shows two optical switches (8)) each having first and second input ports (the input ports are to the left of the switches, where optical signals are received by the switches) and first and second output ports (the output ports are to the right of the switches, where optical signals are transmitted out of the switches), said n optical signals output from said optical demultiplexer (6) being supplied to said first input ports of said n first optical switches (the optical switches (8) are coupled to the demultiplexer (6) for receiving optical signals (λ1-λn)), respectively;

a second optical switch (24) having k (k is a natural number) input ports (the input ports are at the bottom of the switch, where optical signals are received from device (12)) and n output ports (the output ports are at the top of the switch, where optical signals are transmitted out to the first switch (8)), an optical signal to be added being supplied to at least one of said k input ports of said second optical switch (signal from device (12) is supplied to the input port of the switch), said n output ports of said

second optical switch being connected to said second input ports of said n first optical switches (the output port, which is at the top of the switch (24), is connected to the input ports of the first optical switch (8)), respectively;

an optical multiplexer (10) for wavelength division multiplexing optical signals output from the first switches (8); and

a third optical switch (26) having n input ports (the input ports are at the top of the switch, where optical signals are received from first optical switch (8)) and k output ports (the output ports are at the bottom of the switch, where optical signals are transmitted to device (16)), said n input ports of said third optical switch being connected to said second output ports of said n first optical switches, respectively, an optical signal to be dropped being output from at least one of said k output ports of said third optical switch (the optical signal transmitted to device (16) are dropped from the output port of the third switch (26)).

Reference A shows the optical add/drop device as discussed above comprising first optical switch (8) connected to the multiplexer (10) for multiplexing the optical signal and differ from the claimed invention in that reference A does not specifically show n regenerators connected to said first output ports of said n first optical switches, respectively and coupled to the multiplexer. However, providing regenerator after the optical switch is well known. Karasan et al is cited to show such well known concept. In col. 2, lines 53-59, Karasan et al disclose that regenerators can be used between optical crossconnect (or optical switch) and multiplexer. It is well known that switching element couples or connects signal between input port and output port. The coupling or

connecting action of the switching element between various input ports and output ports generates noise. As signal goes through such switching element signal quality degrades. Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide regenerators after the switching element as taught by Karasan et al to the device of reference A. For example, such regenerator can be provided between the first output port of optical switch (8) and the multiplexer (10). One of ordinary skill in the art would have been motivated to do such in order to eliminate or reduce noise and increases signal to noise ratio.

Regarding claim 2, as disclosed on page 4, lines 4-6, the prior art as shown in Fig. 2, comprises k wavelength converters (18) connected to said k output ports of said third optical switch (26), respectively.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Prasanna (US Patent No. 6,735,390) is cited to show optical communication system wherein regenerators provided after the optical switch (see Figs. 2 and 3).

Kuroyanagi et al (US Patent No. 5,805,320) is cited to show cross-connect device comprising of wavelength converters (see Fig. 10).

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalzid Singh whose telephone number is (571) 272-3029. The examiner can normally be reached on Mon-Fri 9am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272--3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DS
September 28, 2004
Dalzid Singh